CITIZEN BAND TRANSCEIVER

MODELS
761-762

INSTRUCTION MANUAL

761-762-1

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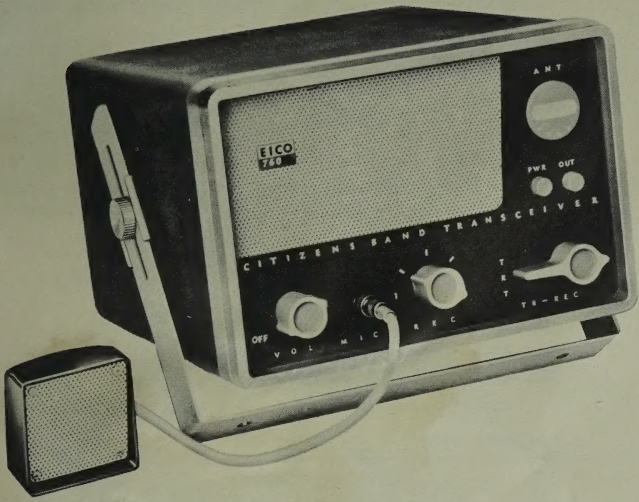

Model 761-762

CITIZENS BAND TRANSCEIVER

general description

GENERAL

EICO Models 761 and 762 are thoroughly useful and reliable Citizen Band (CB) transceivers designed for either mobile use (battery operation) or base station use (117VAC line operation). The Model 761 permits either 117 VAC or 6V battery operation and the Model 762 117VAC or 12V battery operation. They are otherwise identical and each consists of a 5 watt crystal-controlled transmitter and a sensitive, selective superheterodyne receiver with RF stage and noise limiter. Included are a built-in speaker and a detachable ceramic microphone. Also provided is a universal mounting bracket for vehicle installation which permits the transceiver to be turned and locked at any desired position within the bracket.

The transmitter circuit, in the kit model as well as the factory-wired, is supplied with pre-set and sealed crystal oscillator circuit elements that will produce on-frequency operation with any channel EICO crystal. In addition to the fact that the oscillator circuit is broadly tuned, this facility hinges on the fact that each and every EICO crystal is ground to oscillate at its specific frequency with exactly the reactance across its terminals that is presented by each and every pre-set crystal oscillator circuit in every unit. Using only EICO crystals, it is possible, by simply changing crystals, to shift from any transmission channel to any other without adjustments to maintain on-frequency operation. Furthermore, a metering jack is provided to permit measurement of the plate current in the final RF stage of the transmitter. Using any good milliameter (or volt-ohm-milliameter) and a PL-55 phone plug as an adaptor, it is thereby possible to make certain adjustment of the RF input power to the 5-watt maximum set by FCC regulation.

A variable "pi" network permits matching to most popular types of antennas. A dummy load is provided also for off-the-air transmitter tuning (permitting practice adjustments without radiating energy prior to adjustment to a real antenna). Directly-attached base-loaded portable whip, rear bumper mounting, and mast-mounted ground plane (roof) antennas are available as accessories.

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specifications

TRANSMITTER SECTION

Power Input: 5 watts to plate of final RF amplifier (FCC maximum).

Transmitter Frequency Range: 26.965 - 27.255mc

Transmitter Frequency Control**: 3rd overtone type quartz crystal operating within 0.005% of marked channel frequency between -32°F and 140°F. May be operated on any one of 23 available channels. Only EICO or EICO-approved crystals may be used or violation of FCC regulations may occur due to off-frequency operation, (EICO crystal provide specific capacity allowed for in tuned circuits of the transceiver).

**Crystal oscillator circuit elements factory pre-set and sealed — will operate properly with any of the 23 Class D channel 3rd overtone crystals.

Modulation: AM plate modulation automatically limited to less than 100% (FCC requirements).

Output Impedance: Variable "pi" network permits adjustment to most popular antenna types.

Antenna Connectors: One on rear apron for connection of separate antenna of any type; facilities for either top mounting or panel mounting of directly attached base-loaded portable whip antenna.

Accessory Antennas Available: Base-loaded portable whip, ground plane (roof) antenna.

Dummy Antenna Load: Supplied for off-the-air tuning of the transmitter.

Indicators on Panel: Pilot light, transmit indicator light.

Microphone: Ceramic element, plastic case, with cord and connector.

RECEIVER SECTION

Receiver Type: Superheterodyne with RF stage and built-in noise limiter.

Tuning Range: 26.965 - 27.255mc

Sensitivity: 1 microvolt for 10db signal-to-noise ratio.

Audio Output: 1 watt; 2watts with tolerable distortion.

Speaker: Built-in 3" x 5" oval PM

Tube Complement (Total of 7): 12BY7 final RF amplifier, 6BA6 receiver RF amplifier, 6U8A mixer — local oscillator, 6U8A 1st IF amplifier — transmitter crystal oscillator, 6U8A 2nd IF amplifier — audio amplifier, 6FM8 diode detector — noise limiter — microphone preamplifier, 6AQ5 audio power amplifier; power supply employs silicon diode rectifiers.

Size (less antenna) HWD: 6" x 8 1/2" x 9"

Shipping Weight (All Models): 12 lbs.

POWER SUPPLIES SECTION

Model 761 has a transformer-operated silicon diode doubler power supply for 117VAC, 60 cps operation, and a supplementary vibrator power supply for 6VDC battery operation.

Model 762 has a transformer-operated silicon diode rectifier power supply for 117VAC, 60 cps operation, and a supplementary power supply for 12VDC battery operation.

ORIGINAL EQUIPMENT

CB transceiver as described, microphone with cord and connector, CB crystal, universal mounting bracket.

ACCESSORIES

a) Additional Crystals: Available frequencies on request

b) Model AT-1 Base-Loaded Portable Whip Antenna: Can be directly attached to either top or panel of transceiver unit. Vinyl covered loading coil wound into rod reduces length to 40". Complete with PL-259 connector fitting top or panel connector on transceiver unit. Weight 1 lb., 4 oz.

c) Model AT-3 Ground Plane Antenna: A roof-type non-directional antenna fitting 1" IPS pipe. Vertical radiator and four 2-piece radials are solid aluminum, all removable from the cadmium plated steel mounting bracket. "U" bolt hardware furnished. Base accepts PL-259 connector. Supplied with 50 ft. of RG-58/U having PL-259 connector at one end and auto-radio lead in connector on other end. Weight 3 1/2 lbs.

POWER CONNECTIONS

Model 761 permits either 117VAC, 60 cps line operation or 6.3V battery operation. Model 762 permits either 117VAC, 60 cps line operation or 12.6V battery operation.

It is absolutely essential for the preservation of your unit that you use the correct amperage fuse for the type of operation employed. With 117VAC, 60 cps line operation of either Model 761 or 762, use a 1 ampere fuse. In battery operation of Model 761 (6.3V), use a 12 ampere fuse. In battery operation of Model 762 (12.6V), use a 6 ampere fuse.

Both Models 761 and 762 are each provided with two different detachable power cable assemblies, one for 117 VAC line operation and one for battery operation.

a) The power cable assembly for 117VAC operation of either model consists of a female octal connector to which is attached a regular line cord. The female octal connector is pushed over the male octal plug on the rear chassis apron (position female connector so that keyway is directly opposite key on male plug*), and the attached line cord is plugged into a 117VAC line outlet.

b) The power cable assembly for battery operation of either model consists of a female octal connector to which is attached a twisted pair of heavy gauge red and black wires. Only the red wire enters the octal connector; the corresponding end of the black wire is free and terminated in a lug. The lug at the end of the black wire is fastened under the wing nut on the rear chassis apron and the female connector is pushed over the male octal plug (position female connector so that keyway is directly opposite key on male plug*). The remaining free ends of the red and black wires are stripped. Attach the free end of the red wire to the ignition switch and the free end of the black wire to the car frame.

*If the female octal connector does not push freely over the male octal plug (with key and keyway aligned), check pins of male plug for solder bubbles and remove, if necessary, with a file or knife.

ANTENNA INSTALLATION

The Models 761 and 762 conform to the FCC regulations for class D transmitters which limits the final-stage input to 5 watts. With this amount of power, the communication range will vary greatly with terrain, interference, as well as antenna type, height, and loading.

EICO offers three type of antennas described fully in the specifications. Choose your antenna with an understanding of its capabilities. The AT-1 base-loaded whip antenna which can be directly attached to the transceiver through either a hole in the top of the cabinet or a hole on the panel (suitable in bulk-head transceiver mounting in marine use), is sufficient for short range communications, about 2 to 3 miles in urban areas and 10 miles on open water.

The AT-3 ground-plane antenna provides the greatest possible omni-directional coverage and must be used for reliable coverage over 3 miles in urban areas or wherever the building is shielded by metal; a range up to 7 or 8 miles is possible, although not assured, in urban areas, and greater in open, flat terrain. The AT-3 is intended for mast-mounting on a roof and should be mounted as high as possible within the legal limits established by the FCC (no higher than 20 feet above the structure on which the antenna is mounted).

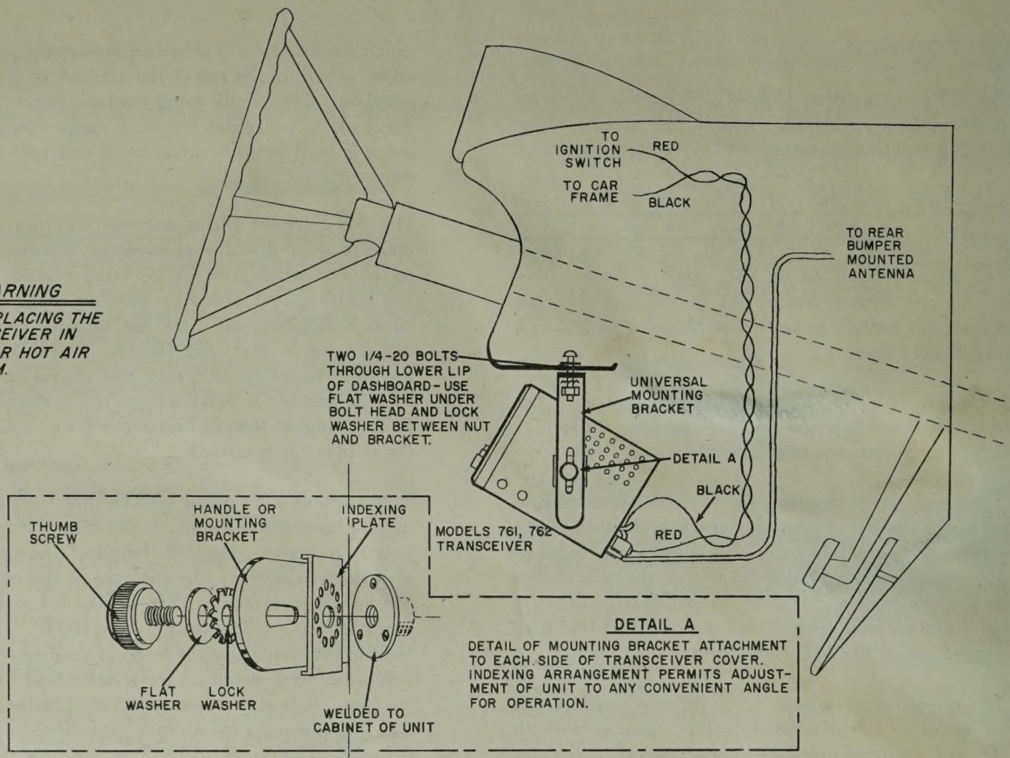
It is preferable to avoid lead lengths longer than those supplied with the antenna. In the case of the rear bumper mounting antenna, the 19 ft. length of line supplied should always be adequate. In the case of the roof-mounting ground-plane antenna, 50 ft. of line is supplied, but it is possible to use a line length up to 100 ft. if it is done in order to achieve a superior antenna location. If in either a vehicle or roof-mounting installation the line supplied is too long, it is not necessary to cut it to length. Simply coil up the excess length and place it somewhere out of the way. If you do cut the line, be sure the connector on the transceiver end is properly attached to the cut end of the line.

Surrounding noise in mobile installations is nearly always greater than in fixed-location installations. For this reason, not only should the transceiver in a vehicle be placed within easy reach of the operator, but strong consideration should also be given to the placement insofar as enabling the operator to hear messages distinctly. The latter problem is greatly eased by the special mounting bracket arrangement supplied with mobile models, which permits the transceiver to be rotated and locked within the bracket to any position desired by the operator.

As to engine ignition interference, the transceiver is at no disadvantage compared to a standard broadcast band auto radio receiver. If you have a problem, a competent auto radio repair shop should be able to locate and remedy the difficulty. In the case where a rear bumper mounting antenna is used, an interference problem may often be solved by electrically grounding the tail pipe to the vehicle frame at one or more places. (Muffler and tail pipe are often only grounded at the engine end because anti-vibration clamps insulated with rubber are used).

It is essential for good antenna performance to connect the transceiver to a good earth ground. The earth ground wire can be attached under the wing nut on the rear chassis apron.

DETAILS OF MOBILE INSTALLATION


TO IGNITION SWITCH
RED
TO CAR FRAME
BLACK
TO REAR BUMPER MOUNTED ANTENNA
TWO 1/4-20 BOLTS THROUGH LOWER LIP OF DASHBOARD - USE FLAT WASHER UNDER BOLT HEAD AND LOCK WASHER BETWEEN NUT AND BRACKET.
UNIVERSAL MOUNTING BRACKET
DETAIL A
BLACK
RED
MODELS 761, 762 TRANSCEIVER
THUMB SCREW
HANDLE OR MOUNTING BRACKET
INDEXING PLATE
FLAT WASHER
LOCK WASHER
WELDED TO CABINET OF UNIT
DETAIL A

WARNING

AVOID PLACING THE TRANSCEIVER IN OR NEAR HOT AIR STREAM.

DETAIL OF MOUNTING BRACKET ATTACHMENT TO EACH SIDE OF TRANSCEIVER COVER. INDEXING ARRANGEMENT PERMITS ADJUSTMENT OF UNIT TO ANY CONVENIENT ANGLE FOR OPERATION.

operating instructions

OPERATING INFORMATION

To receive, set the TRANSMIT-RECEIVE switch to RECEIVE, turn the VOLUME/OFF control clockwise to a point that will give a comfortable listening level, and adjust the RECEIVER tuning control to the transmitting station channel.

To transmit, set the TRANSMIT-RECEIVE switch to either the upper TRANSMIT position or hold down at the lower spring-return TRANSMIT position, and speak directly into the microphone in a normal tone of voice with the microphone 4" to 8" away. "Shouting" will not help as it only results in distortion and loss of intelligibility.

Note that you can not transmit and receive simultaneously. This means, that while you are transmitting you can not hear any comments or interruptions from the station you are talking to. Likewise, while you are receiving, the transmitting station can not hear any comments or interruptions made by you. For this reason, it is better not to ask a long series of questions during one transmission, but to ask only one or two questions at a time, allowing these few questions to be answered before asking new ones in the following transmission. Jotting down information on a pad is helpful in this type of communication.

Station call letters must be stated at the beginning and end of every series of transmissions, but need not be repeated in between so long as the series of transmissions is under 10 minutes total duration. For longer communications, station call letters must be repeated every 10 minutes. To avoid confusion, always state at the beginning of each transmission the number of the unit in the system that is transmitting and the one being addressed, such as "Unit 1 to Unit 2". In order to avoid incomplete transmissions, also indicate clearly that your transmission is over by such phrases as "go ahead" or "come in, please". At the end of the series of transmissions, indicate it clearly by such a phrase as "Unit 1 signing off and clear with Unit 2".

OPERATING NOTES

a) Form 505 permitting application for a station license from the FCC has been supplied with the unit. No examination is required. It is a violation of FCC regulations (Part 19) governing Citizens Band (Class D) radio service to operate a transmitter prior to receipt of a license and a call sign.

The certification at the bottom of Form 505 contains a statement that the applicant has a current copy of Part 19 of the Federal Communication Commission's Rules governing the Citizens Radio Service. Part 19 is now included in Volume V1 of the Commission's Rules which is available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

If you do not actually have a copy of Part 19, you may still file your application if you state under "Remarks" that you have ordered a copy of Volume V1 from the Government Printing Office. You should also strike out that part of the Certification which deals with possession of a current copy of Part 19.

An order form for Volume V1 is supplied along with Form 505. Send the filled out order form for Volume V1 to the Government Printing Office, not the Commission.

b) It is possible for a station on the same channel as you to interfere if that station can reach the station you are contacting with roughly equivalent or greater signal strength. It is evident that this situation resembles the telephone "party line". The only feasible as well as courteous way of dealing with this situation is to wait until the interfering station is through before using the channel. If the situation is chronic and prevents satisfactory use of the system, it may be remedied by installing a cyrstal for a channel on which there is no regular interference.

c) If there are only two stations in a system, each may transmit on a different channel from the other without difficulty. If there are three or more stations in a system, it is only practical for all stations to transmit on the same channel.

d) A properly operating transceiver will not interfere with AM broadcasts, but a slight amount of interference to weak FM signals at the high frequency end of the FM band or to weak television signals on channels 2 and 5 may occur if the transceiver transmitting antenna is located close by to the FM/TV receiver antenna. Moving the antennas further away from each other will usually eliminate any interference.

e) The RECEIVER tuning dial is calibrated in channel numbers, 1 to 23. A table of channel numbers vs. frequencies is given below. Please note that the calibration of the RECEIVER tuning dial is only approximate and is provided for reference purposes only. When tuning in a particular channel, do not expect to find it right where the channel number appears on the dial. Rock the tuning knob around the particular channel number on the dial until you tune in the desired station.

f) If you are interested in obtaining more information on the legal and technical aspects of operating a Class D Citizens Band station, you are referred to an excellent book titled "Class D Citizen's Radio" by Leo G. Sands (Ziff-Davis publisher).

Channel No.	Frequency (MC)	Channel No.	Frequency (MC)
1	26.965	13	27.115
2	26.975	14	27.125
3	26.985	15	27.135
4	27.005	16	27.155
5	27.015	17	27.165
6	27.025	18	27.175
7	27.035	19	27.185
8	27.055	20	27.205
9	27.065	21	27.215
10	27.075	22	27.225
11	27.085	23	27.255
12	27.105		

circuit description

CIRCUITRY BLOCKS

The transceiver consists of four circuitry blocks as follows:

a) Superheterodyne CB tuner including RF amplifier V1, mixer V2, two IF amplifiers V3A & V4A, detector and noise limiter V5A.

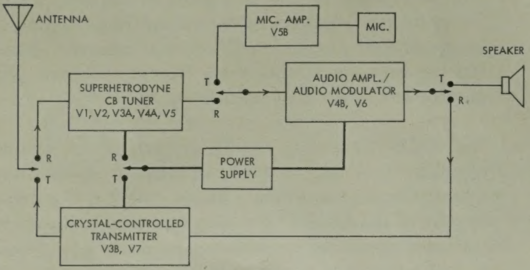
b) Audio amplifier-modulator. As receiver audio amplifier, it consists of audio voltage amplifier V4B, audio power amplifier stage V6, combination modulation and output transformer T1, and speaker SP1. As transmitter modulator, microphone amplifier V5B is added to the above mentioned stages and speaker SP1 is disconnected from T1; instead, a special winding of T1 feeds modulating energy to the final RF amplifier V7.

c) Crystal-controlled transmitter including crystal oscillator stage V3B, and final RF amplifier V7.

d) Power supply including power transformer T5, vibrator, silicon diodes CR1 and CR2, and associated elements.

To summarize, the superheterodyne CB tuner and the crystal-controlled RF amplifier are each independent circuitry blocks. The audio amplifier-modulator and the power supply blocks are connected to the superheterodyne CB tuner block at the RECEIVE position of the TRANSMIT-RECEIVE switch S1 to form a CB receiver, and to the crystal-controlled transmitter at either TRANSMIT position to form a CB transmitter. The audio amplifier-modulator is always energized by the power supply, but the crystal controlled RF amplifier is energized only at the

TRANSMIT positions and the superheterodyne CB tuner only at the RECEIVE position. The speaker is connected only at the RECEIVE position. The antenna is connected to the input of the CB tuner at the RECEIVE position and to the output of the CB transmitter at the TRANSMIT positions. In the block diagram given here, the switching shown is a simplified version of that accomplished by switch S1.



DETAILS OF EACH BLOCK

a) Superheterodyne CB Receiver: From the antenna the incoming signal is fed to RF transformer L3 where it is stepped up and fed to the control grid of the RF amplifier V1. The amplified signal is developed across the plate tank L4 and C12 from where it is fed to the control grid of the mixer section (pentode) of V2 via coupling capacitor C15. RF transformer L3 and the plate tank L4 and C12 are tuned broadly to cover the entire CB frequency range. The triode section of V2 is the local oscillator employing a tank circuit comprised of L5, C22, C23 and variable capacitor C21 which is the RECEIVER tuning control. The frequency range of the local oscillator is 25.215 — 25.505mc, exactly the 1750kc intermediate frequency below the CB frequency range of 26.965 — 27.255mc. The local oscillator tuning range is set by adjusting L5 with C21 fully closed to generate the lowest required frequency of 25.215mc (method given in detail in the tuning procedure). The local oscillator frequency is fed to the control grid of the mixer section (pentode) of V2 via capacitor C17 which injects enough signal for proper mixing, and in the output of the mixer both the sum and the difference frequencies of the local oscillator and the RF input frequencies are obtained. Only the difference frequency is in the region of the 1750KC intermediate frequency which the succeeding IF amplifiers stages are tuned to pass and amplify. As C21 is opened by turning the RECEIVER tuning control, each of the CB channels 1750kc above the local oscillator frequency is "tuned in" in turn. Any CB RF signal from 26.965 to 27.255mc thus "tuned in" is now converted to a 1750kc signal which is greatly amplified with a high degree of selectivity by the IF stages V3A and V4A. There are three tuned IF transformers, T2, T3, and T4; T2 couples the mixer to the 1st IF stage, T3 couples the 1st IF stage to the 2nd IF stage, and T4 couples the 2nd IF stage to the detector. The detector is a series diode type, the diode being the section terminating in pins 1 and 6 of the pair denoted V5A. The second diode of the pair, terminating in pins 2 and 3, is used as a series noise limiter. The detected audio signal is taken off volume control R25 and fed to the input of the audio amplifier section V4B and V6 when switch S1 is set at RECEIVE.

b) Audio Amplifier-Modulator: V4B and V6 constitute a conventional triode audio voltage amplifier driving a beam pentode output stage. When switch S1 is set at RECEIVE, the detected audio taken off volume control R25 is fed to the control grid of V4B and the combination modulation and output transformer T1 couples the V6 output stage to speaker SP1. When switch S1 is set at either TRANSMIT position, the output of microphone amplifier V5B is fed to the control grid of V4B. In the V5B stage, L7, C36, and C38 constitute an RF suppression filter. Also, the secondary winding of T1 is opened (thus disconnecting the speaker) and the tapped primary winding of T1 behaves as a step-down auto-transformer for modulation purposes, feeding the audio output from the primary tap to the screen of the final RF amplifier V7.

c) Crystal-Controlled Transmitter: Constituted of a crystal oscillator stage V3B driving a final RF amplifier V7 which is plate modulated by the audio modulator described above. The crystal is in the grid circuit of V3B, and tunable inductor L6 with its parallel stray capacity constitutes a tuned plate load. L6 is adjusted to resonate with its stray capacity at the center of the CB frequency range to constitute an optimum load for third harmonic operation at all CB crystal frequencies. Capacitors C44 and C46 comprise a voltage divider from which is derived positive feedback to the grid of V3B for the purpose of increasing the drive to the amount required. Capacitor C45 adds to the shunt capacity across the crystal to provide, together with stray capacity, the proper capacitive load for the crystal (approximately 20mmf). The output of the crystal oscillator is fed through capacitor C1 to the control grid of final RF amplifier V7. The plate tank circuit of final RF amplifier V7 is composed of inductor L2 and two adjustable trimmer capacitors C6 and C7 connected as a "pi" network for accepting antenna loads with different characteristics. C6 is used to adjust the tank circuit to resonance at the transmitted frequency, as evidenced by minimum V7 cathode current, and C7 is used to adjust for maximum power transfer to the antenna allowed by FCC regulation with any antenna connected, indicated by a V7 cathode current of 27-28ma maximum. These two adjustments interact and a detailed procedure is given in the alignment instructions. TRANSMIT indicator lamp I1 is operated by RF power at the plate of the final RF amplifier V7 and will flicker in response to the speech modulation.

d) Power Supply: Includes the following: power transformer T5; silicon diode voltage doubler circuit consisting of CR1, CR2, and the two sections of C52 designated by square and triangle; B+ filter circuit consisting of R37 and the section of C52 designated by a half-round. Provides a filtered DC voltage of 250V ±10%. The power supply can be operated from either the 117VAC line or by battery employing the built-in vibrator. Two power cable assemblies are provided, one for each type of operation, which make the appropriate internal connections. Note that the same power supply is employed for both transmitting and receiving. ON indicator lamp I2 indicates the application of power. The circuit blocks energized in each mode is evident from the block diagram.

maintenance

GENERAL

Your transceiver should require little service except for normal tube replacement. No substitution for tube types used in this tuner is permissible. Transceivers built from the kit form must have a "touch-up" alignment of the receiver section by one of the procedures given; the transmitter section is pre-set and sealed at the factory with the crystal supplied. All transceivers, kit or factory-wired, must have their power output adjusted with the particular antenna used connected according to the procedures given.

RECEIVER SECTION ALIGNMENT

Two methods will be given, one not requiring the use of a signal generator and the other making use of a signal generator. Both methods, however, require the use of a VOM having a sensitivity of 2000Ω/V or higher (EICO 555, 565) or a VTVM (EICO 232, 221). Note, however, that all coils and IF transformers supplied in your kit are pre-adjusted to a degree of accuracy that will necessitate only a "touch-up" adjustment in order to obtain perfect alignment. Usually less, but no more than a half-turn of the adjustment screw will be required on any coil or IF transformers. In any event, do not attempt alignment before there is enough evidence that the receiver section is in proper working order as determined by the following procedures:

a) Turn VOLUME control completely clockwise.

b) See that all tube filaments are lit.

c) With the TRANSMIT-RECEIVE switch set at the RECEIVE position, touching of a screwdriver held by the blade to the center post of either antenna connection jack should result in a "click" heard from the speaker.

d) Check voltages on all tube socket pins against the Voltage Chart.

If your unit does not check out properly in these tests, it is not only useless to attempt alignment, but, more likely than not, you will mess up the pre-adjustments on the coils and IF transformers, and make it more difficult to align the receiver after you get it in proper working order. Instead, consult the trouble shooting procedures, read the circuit description, and study the schematic diagram to help discover and remedy the trouble. It may be necessary to go over the wiring step by step in order to discover a wiring error. If possible, do this with a friend, since we are sometimes blind to our own mistakes. If your unit does pass these tests, proceed to one of the receiver alignment methods below. Note that the receiver section alignment necessitates removal of the cabinet. It is easiest to perform the alignment with the transceiver lying on its left side. No antenna is connected.

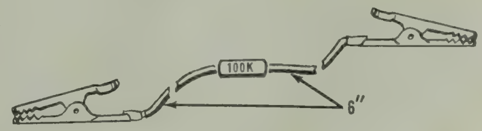
Method 1: Receiver Alignment Without Using Signal Generator:

a) Turn OFF/VOLUME control counter-clockwise to OFF.

b) Set RECEIVE-TRANSMIT switch to RECEIVE.

c) Set RECEIVER tuning control at the same channel on the dial as the transmitter crystal you are using. For example, if you are supplied with a channel 10 crystal (27.075mc), set the RECEIVER tuning knob at 10 on the dial.

d) The signal used for alignment is obtained from the transmitter section, which is normally de-energized at the RECEIVE position of the RECEIVE-TRANSMIT switch. In this method, we energize the crystal oscillator stage only by "defeating" the disconnection of this stage from the B+ supply with an apparatus consisting of two alligator clips, two 6" lengths of hook-up wire, and a 100KΩ, 1/2 watt resistor. A 6" length of hook-up wire is connected and soldered to each pigtail lead of the 100KΩ resistor, and an alligator clip is connected and soldered to both free ends of the 6" wires as shown below.



Connect one alligator clip of this apparatus to the terminal of the three-section electrolytic capacitor C52 designated by a triangle (△) mark (T5 red lead connects to this point). Connect the other alligator clip to switch lug S1-2A.

In this way, the crystal oscillator V3B is energized with a poorly filtered B+ voltage and the oscillator energy will be radiated around the chassis with a 120 cycle modulation which can be detected and measured to indicate the sharpness of alignment of the receiver circuits.

e) Rotate OFF/VOLUME control clockwise from OFF position to turn the transceiver on, and allow ten minutes warm-up to achieve stable operation.

f) Alignment of Local Oscillator: Adjust the VOLUME control to a point where the 120 cycle hum is heard clearly. Now use a tuning wand or insulated screwdriver to turn the adjustment screw on L5 left or right slightly until a point is reached where the strength of the audible hum out of the speaker is at a maximum. This completes the adjustment of the local oscillator. Turn the volume control to OFF. Do not remove the apparatus connected earlier.

g) IF Alignment: With the control settings as left at the completion of the local oscillator alignment, and the apparatus left connected which energizes crystal oscillator stage V3B, connect the "hot" lead of either a VOM (of 2KΩ/V sensitivity or higher) or a VTVM set for a-c voltage measurements to pin 5 (plate) of audio output stage V6. Connect the common or ground lead of the instrument to the chassis of the transceiver. If the VOM has a function position designated "OUTPUT", use this position (which places an internal blocking capacitor in series to block out the DC voltage at the plate of the tube), or else you must connect to pin 5 through an external blocking capacitor of 0.1mf. Set the VOM or VTVM to the 50VAC range or thereabouts. Now turn the VOLUME control clockwise from OFF and set it at about mid-rotation. Again allow a warm-up time of several minutes to achieve stable operation. You will hear the 120 cycle hum (and distortion components thereof) as before in the alignment of the local oscillator. In addition, the a-c voltmeter connected to pin 5 of V6 will give a quantitative measure of the audio signal you hear. Adjust the VOLUME control to obtain an approximately center-scale reading on the meter. Now adjust all three IF transformers, T4, T3, and T2, both top and bottom for a maximum meter reading, using a hex wand. Adjust the IF transformer cores in the following order: top of T4, bottom of T4, top of T3, bottom of T3, top of T2, bottom of T2 ("top" indicating adjustment accessible from top end of IF can, and "bottom" indicating adjustment accessible from under-chassis end of IF can). Remember that only a slight turn either left or right in each case will be required to achieve top performance. Repeat this procedure two more times, or until no more improvement can be noticed. If the meter reading reaches full scale during the adjustment procedure, back off the VOLUME control to obtain a mid-scale reading again in order that further improvement in alignment can be observed. When IF alignment is completed, it will be evidenced by a strong "rushing" sound from the speaker varying with the setting of the VOLUME control.

h) RF Alignment: Coil L4 in the RF amplifier requires a slight "touch-up" alignment also. This alignment follows immediately after the IF transformer alignment described above and the set-up is unchanged. With a tuning wand or insulated screwdriver, turn the adjustment screw on the top of L4 slightly left or right for a maximum meter reading. (Turn VOLUME control to OFF). Performance will also benefit somewhat by optimizing the adjustment of coil L3. To adjust coil L3, remove the apparatus that "defeats" the B+ disconnection of the crystal oscillator stage, and set the TRANSMIT/RECEIVE switch at RECEIVE. (Turn VOLUME control to "on" position). Now connect the antenna, and set the RECEIVER tuning control to receive some station at about the center of the Citizen Band, if possible. With a hex tuning wand or an insulated screwdriver, turn the adjustment screw on the top-of-chassis end of L3 slightly either left or right to achieve maximum loudness of the received transmission. It should be noted that the adjustment of L3 is very broad and it is perfectly satisfactory to adjust in this way.

Method 2: Receiver Alignment Using Signal Generator.

Perform steps (a) through (f) of Method 1, and then proceed to step (g) below after disconnecting the special apparatus used to provide poorly filtered B+ operating voltage for the crystal oscillator stage.

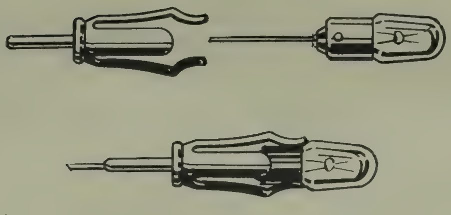
g) IF Alignment: After complying with the above, connect the "hot" lead of a VOM (2KΩ/V minimum sensitivity) or a VTVM to pin 5 (plate) of audio output stage V6 and the common or ground lead to chassis ground. Use the 50VAC range or thereabouts, and if a VOM is employed, set it at the "output" measuring function (or else connection to pin 5 of V6 must be made through an 0.1mf blocking capacitor). Now connect the "hot" lead of an RF signal generator (EICO 324) to pin 2 (grid) of V2, and the ground lead to the transceiver chassis. Turn the transceiver VOLUME control to three-quarters full clockwise rotation. Set the signal generator to obtain a modulated 1750kc signal and adjust the output attenuator for a one-quarter of full scale reading on the meter. Allow a 30 minute warm-up for the signal generator to ensure freedom from drift during the alignment procedure. Now adjust all three IF transformers, T4, T3, and T2, both top and bottom for a maximum meter reading. Adjust the IF transformer cores in the following order: top of T4, bottom of T4, top of T3, bottom of T3, top of T2, bottom of T2 ("top" indicating adjustment accessible from top end of IF can, and "bottom" indicating adjustment accessible from under-chassis end of IF can). Remember that only a slight turn either left or right in each case will be required to achieve top performance. Repeat this procedure two more times, or until no more improvement can be noticed. As alignment proceeds, back off the signal generator output attenuator to keep the meter reading between one-quarter and one-half scale. When IF alignment is completed, it will be evidenced by a strong "rushing" sound from the speaker varying with the setting of the VOLUME control.

h) RF Alignment: Coils L3 and L4 in the RF amplifier require a slight "touch-up" alignment also. This alignment follows immediately after the IF transformer alignment described above, and the set up is exactly the same except that the signal generator is now set at 27mc and is connected to either antenna connector ("hot" lead to center conductor contact of antenna connector through 100Ω resistor and ground lead to transceiver chassis). Set the transceiver VOLUME control so that the modulation is audible. Then set the signal generator output attenuator so that the a-c voltmeter connected to pin 5 (plate) of V6 reads one-quarter of full scale on the 50VAC range. With a tuning wand or insulated screw driver, turn the adjustment screws on the top-of-chassis ends of L4 and L3 slightly either left or right to obtain a maximum meter reading. Repeat these adjustments until there is no further improvement, backing off the signal generator output attenuator as required to keep the meter reading between one-quarter and one-half scale as alignment proceeds. This completes the alignment of the receiver section. Turn VOLUME control to OFF.

TRANSMITTER SECTION ADJUSTMENT

The crystal oscillator circuit elements are pre-set and sealed at the factory and should not be tampered with. The only adjustments required are of trimmers C6 and C7 in the plate tank circuit of the final RF amplifier. These adjustments must be made finally with the actual antenna connected, meaning that you will be actually radiating energy during the adjustments. In the procedure below, a dummy load is substituted for the actual antenna in order to permit a check of the operation and to allow a practice adjustment without radiating energy. In order to make the adjustments, you will need to read the plate current of the final RF amplifier for which purpose a phone jack is provided on the rear chassis apron. You will be required to wire meter connection leads to a phone plug supplied, as well as construct the dummy load from a #47 lamp and an antenna plug supplied. Again, note that the dummy load is not the equivalent of the actual antenna and that the procedure must be performed finally with the actual antenna connected.

a) Construction of Dummy Load: Solder a 2 inch length of bare wire to the center contact of the #47 lamp (92000). Feed the free end of the bare wire through the center post of the antenna plug. Push the lamp into the split shank of the antenna plug until the metal socket of the lamp is entirely inside the split shank. Solder the bare wire to the center post of the antenna plug. Solder the metal socket of the lamp to the split shank of the antenna plug at one point. Cut off excess of bare wire protruding from the center post of the antenna plug. If necessary, file or cut away any solder bubbles or excess solder on the center post of the split shank of the antenna plug.



ANTENNA PLUG AND #47 LAMP

b) Construction of Phone Plug Adaptor for Current Measurement: Cut off a 12 inch length of red and 12 inch length of black hook-up wire. Unscrew the bakelite shell from standard phone plug supplied. Strip one end of the red wire and connect and solder it to the short terminal of the plug (center conductor); strip one end of the black wire and connect and solder it to the long terminal of the plug (outer conductor). Thread the red and black wire through the shell and screw the shell back in place. The red wire must make connection to the positive (+) terminal of any dc current meter you use, and the black wire of course goes to the negative (-) terminal of the meter.

c) Adjustment Procedure With Dummy Load: Performed with the transceiver out of its cabinet and laying on its left side. Be sure the crystal is inserted.

1) Insert prepared dummy load into auto radio type connector jack J3 on the rear chassis apron.

2) Turn the VOLUME control clockwise from OFF and set the TRANSMIT/RECEIVE switch to the upper TRANSMIT position.

3) Adjust trimmer C6 to the point where the dummy load just begins to light.

4) Connect the prepared phone plug adaptor to a dc milliameter or a VOM set for dc current measurement on the 100ma range (red wire to positive terminal of meter, black wire to negative terminal). Insert the phone plug into jack J1 on the rear chassis apron.

5) Adjust trimmer C6 for a minimum reading on the somewhere between 20 and 30ma, accompanied by maximum brightness of the TRANSMIT lamp on the panel.

6) Adjust trimmer C7 so that the meter reads 27ma.

7) Repeat steps (5) and (6) above several times (or as many times as is effective) so that the C6 adjustment for a minimum meter reading results in a minimum approaching but not exceeding 27ma. It is essential that you do not permit the current to exceed 27ma (21ma plate current plus 6ma screen current), which corresponds to 5 watts input power to the final RF amplifier, the legal maximum specified by the FCC.

   Note: The current, in fact, can be less than 27ma, in which case your input power would be lower than the legal FCC limit. The foregoing procedure should be repeated several times in order to give you the practice necessary for a rapid and correct adjustment with the actual antenna connected instead of the dummy load.

8) Turn the VOLUME control to OFF, and remove the dummy load and the phone plug meter adaptor, The transceiver is now ready to be installed in its cabinet.

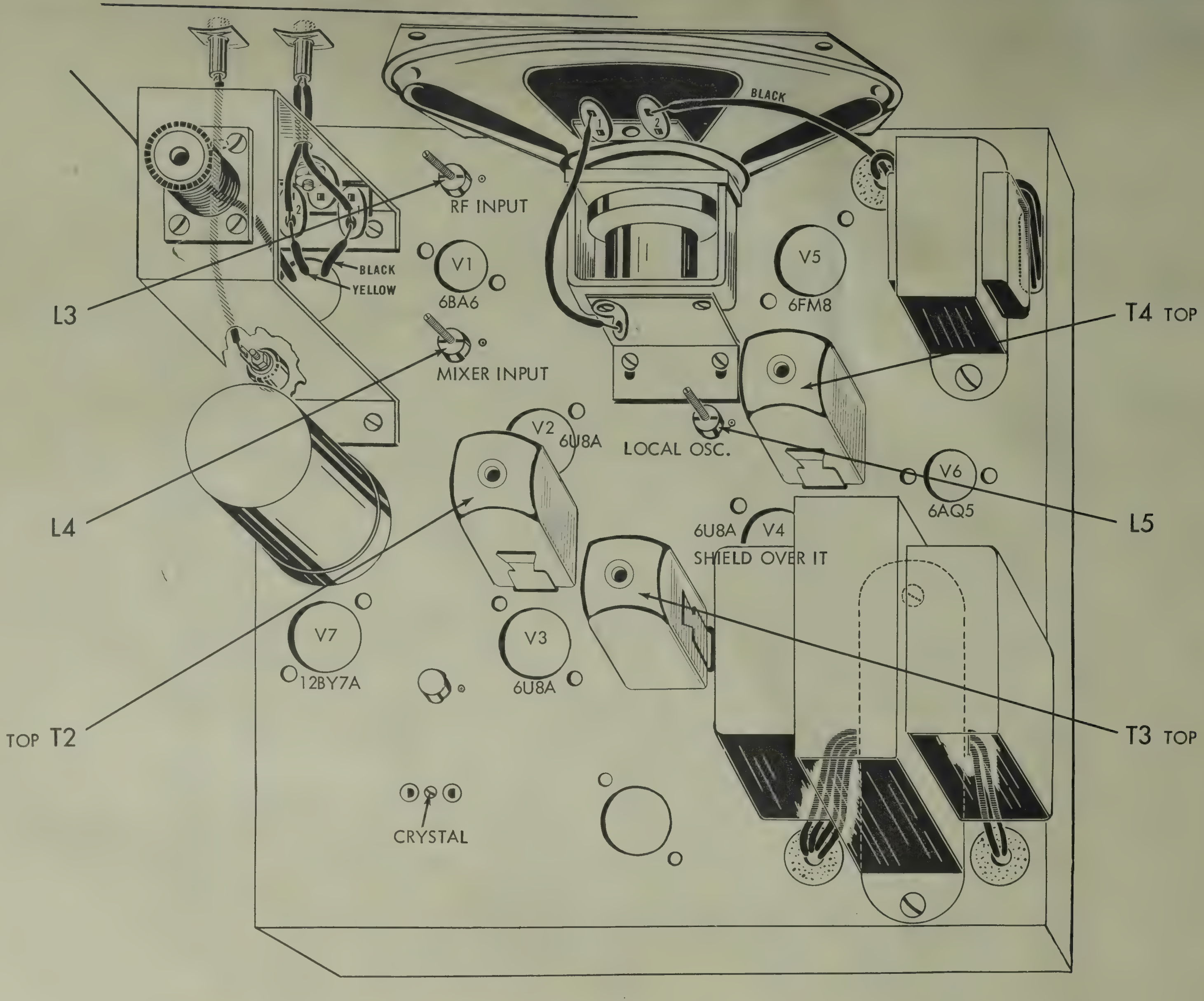
d) Adjustment Procedure With Actual Antenna Connected: With the transceiver installed in its cabinet and the actual antenna connected, repeat procedure (c) above. Be sure to attach the earth ground as well as the microphone. The TRANSMIT lamp on the panel should flicker when talking into the microphone.

TROUBLE SHOOTING

To facilitate servicing, remedial and trouble-shooting procedures have been provided in the TROUBLE-SHOOTING CHART that follows. This chart is based on the assumption that the wiring has been done correctly, and, in fact, has been rechecked for real assurance that no wiring errors or cold solder joints are involved in the malfunction. If this is so, non-operation or improper operation can be attributed only to a defective part or improper adjustment of an adjustable part, and only these possibilities are considered in the chart. Also included in this section are a VOLTAGE chart and a RESISTANCE chart provided as aids in locating defective components and to permit a careful stage-by-stage check of the transceiver. Voltage measurements have been made with a 20,000Ω/V VOM (EICO 555) connecting the common lead to chassis ground. Resistance measurements are also made with the VOM common lead connected to chassis ground, and, most important, with the B+ (point A on the schematic diagram) shorted to chassis ground with a jumper in order to facilitate accurate and rapid measurement of the resistances of interest. This jumper is removed for checking the resistance from the output of the power supply to ground, and, in any case, at the conclusion of the resistance measurements. All measurements, voltage and resistance, are made with the TRANSMIT/RECEIVE switch set at RECEIVE. In voltage measurements, the VOLUME control is turned anywhere clockwise from OFF; in resistance measurements, the transceiver must be disconnected from the power source and the VOLUME control is turned to OFF except where noted. The V7 tube is not included in either chart because its pins are not accessible; the same applies to certain pins of V3.

SERVICE

If trouble develops in your instrument which you can not remedy yourself, write to our service department listing all possible indications that might be helpful. Note number appearing in red under the word "Manual" on the front cover. If there is no number, state this. If desired, you may return the instrument to our factory where it will be placed in operating condition for $9.00 plus the cost of parts replaced due to their being damaged in the course of construction. NOTE: Before returning this unit, be sure all parts are securely mounted. Attach a tag to the instrument, giving your home address and the trouble with the unit. Pack very carefully in a rugged container, using sufficient packing material (cotton, shredded newspaper, or excelsior), to make the unit completely immovable within the container. The original shipping carton is satisfactory, providing the original inserts are used or sufficient packing material is inserted to keep the instrument immovable. Ship by prepaid Railway Express, if possible, to Electronic Instrument Co., Inc., 33-00 Northern Blvd., L.I.C. 1, N.Y. Return shipment will be made by express collect. Note that a carrier cannot be held liable for damages in transit if packing IN HIS OPINION, is insufficient.


RF INPUT
BLACK
YELLOW
BLACK
V1
6BA6
V5
6FM8
L3
T4 TOP
MIXER INPUT
V2
6U8A
LOCAL OSC.
V6
6AQ5
L4
L5
6U8A
V4
SHIELD OVER IT
V7
12BY7A
V3
6U8A
TOP T2
T3 TOP
CRYSTAL

TOP VIEW

REPLACEMENT PARTS LIST

Sym.	Stock#	Am't.	Description
C1*, 12	22570	2	cap., disc, 12mmf, ±5%, NPO
C2*, 4*, 11, 14, 16, 24*, 25*, 27, 30, 48, 49, 50, 51	22526	13	cap., disc, .005mfd (5K or 5,000mmf)
C3*, 45*	22017	2	cap., tub., 10mmf, ±5%, NPO
C5*	21012	1	cap., mica, .001mfd, ±10%, 1000V (1K or 1000mmf)
C6*	29500	1	cap., trimmer, 3-12mmf, NPO
C7*	29509	1	cap., trimmer, 8-480mmf
C8*	22572	1	cap., disc, .005mfd, ±10%, 1KV (5K or 5000mmf)
C9	22010	1	cap., tub., 7mmf, ±10%
C10, 15	22569	2	cap., disc, 18mmf, ±5%, NPO
C13, 28, 58	22560	3	cap., disc, .05mfd (50K or 50,000mmf)
C17	22016	1	cap., tub., 1mmf, ±.25mmf, NPO (grey, white, black, brown, black)
C18, 26*, 29, 32, 38, 47, 53, 54	22505	8	cap., disc, .01mfd (10K or 10,000mmf)
C19	22553	1	cap., disc, .002mfd (2K or 2000mmf)
C20	22567	1	cap., disc, 47mmf, ±5%, NPO
C21	29016	1	cap., variable, 15mmf
C22	22568	1	cap., disc, 39mmf, ±5%, NPO
C23	22015	1	cap., tub., 12mmf, ±5%, N750 (violet, brown, red, black, green)
C31, 36, 37, 42	22552	4	cap., disc, 220mmf, ±10%, 1KV
C33	20039	1	cap., tub., .1mfd, 400V
C34	22522	1	cap., disc, 330mmf, ±10%
C35	23008	1	cap., elec., 4mfd, 250V
C39	23020	1	cap., elec., 25mfd, 6V
C40	23011	1	cap., elec., 50mfd, 50V
C41	22573	1	cap., disc, .01mfd, ±10%, 1KV
C43	20022	1	cap., molded, .01mfd, 600V
C44*	21006	1	cap., mica, 220mmf, ±5%
C46*	21005	1	cap., mica, 100mmf, ±5%
C52	24017	1	cap., elec., 3 x 40mfd
C55, 56	22510	2	cap., disc, .02mfd (20K or 20,000mmf) GMV
C57	20023	1	cap., tub., .015mfd (15K or 15,000mmf) 600V
CR1, 2	93007	2	rectifier, silicon
F1	91006	1	fuse, 1A, Slo Blo (Models 761 & 762 for 117V operation only)
F1 Alt.	91010	1	fuse, 12A, Slo Blo (Model 761 for 6VDC operation)
F1 Alt.	91009	1	fuse, 6A, Slo Blo (Model 762 for 12VDC operation)
I1, 2	97715	2	indicator, neon bulb assembly
J1	50022	1	jack, phone (METER)
J2	50023	1	receptacle, antenna
J3	50033	1	jack, antenna
J4*	97501	1	socket, crystal
J5	50031	1	jack, min. phone (MIC)
J6	51007	1	octal plug
J7	97049	1	socket, 4 pin vibrator
L1*, 7	35052	2	coil, 100uh, choke
L2*	35051	1	coil, tank, 1.8uh
L3	36017	1	coil, ant., tunable, 3 lugs

Stock#	Am't.	Description
10410	1	res., 100KΩ, 1/2W, 10%
39500	1	vibrator, 6V (Model 761 only)
39501	1	vibrator, 12V (Model 762 only)
40000	27	nut, hex, #6-32
40001	4	nut, hex, 3/8-32
40007	22	nut, hex, #4-40
40011	1	nut, wing, #10-32
40012	2	nut, hex, #10-32
40016	1	nut, hex, 1/2-24
40036	1	nut, hex, 1/4-32
41000	19	screw, #6-32 x 1/4
41010	10	screw, #6-32 x 1/8
41014	4	screw, #6-32 x 3/8
41016	19	screw, #4-40 x 1/4
41035	6	screw, #6 P.K. (self tapping)
41051	1	screw, #10-32 x 1/2
41069	2	screw, set, #6-32 x 1/8
41075	4	screw, #4-40 x 3/8
41084	1	screw, #4-40 x 1
41085	2	thumbscrew
41086	6	screw, #6-32 x 5/16
42000	4	washer, lock, 3/8
42001	2	washer, flat, 3/8
42002	27	washer, lock, #6
42004	1	washer, lock, #10
42007	21	washer, lock, #4
42011	2	washer, flat, #10
42023	1	washer, lock, 1/4
42029	1	washer, rubber, 1/2
42037	2	washer, large, 1/4" ID
42049	1	washer, flat, 1/4
42051	2	washer, lock, 1/4"
42501	1	split spring for J6
42511	2	clip, flat spring for I1 & I2
42512	1	vibrator retainer ring
43000	2	lug, ground #6
43001	1	lug, ground, 3/8 or pot.
43005	1	lug, spade
43006	4	lug, ground, #4
46000	3	grommet, rubber, 3/8
46011	4	foot, rubber
48003	1	plug, antenna "Call"
48004	1	plug, antenna cabinet
49011**	1	crystal
50030	1	plug, min., mike
50032	1	plug, ant.
51001	1	plug, meter, PL-155
51503	3	clips, IF

REPLACEMENT PARTS LIST

Sym.	Stock#	Am't.	Description
L4	36018	1	coil, mixer, tunable, 2 lugs
L5	36019	1	coil, oscillator, tunable, 3 lugs
L6*	36020	1	coil, crystal oscillator, tunable
L8	35053	1	choke, vibrator
R1*, 6, 10, 19, 35*	10428	5	res., 47KΩ, 1/2W, ±10% (yellow, violet, orange, silver)
R2*, 31	10430	2	res., 4.7KΩ, 1/2W, ±10% (yellow, violet, red, silver)
R3, 4, 11, 15, 17	10432	5	res., 1KΩ, 1/2W, ±10% (brown, black, red, silver)
R5, 8, 13, 14, 18, 24	10407	6	res., 1MΩ, 1/2W, ±10% (brown, black, green, silver)
R7, 12, 20, 27	10410	4	res., 100KΩ, 1/2W, ±10% (brown, black, yellow, silver)
R9	10851	1	res., 22KΩ, 1W, ±10% (red, red, orange, silver)
R16	10422	1	res., 68KΩ, 1/2W, ±10% (blue, grey, orange, silver)
R21	10500	1	res., 360KΩ, 1/2W, ±5% (orange, blue, yellow, silver)
R22, 23, 29, 30, 33	10431	5	res., 470K, 1/2W, ±10% (yellow, violet, yellow, silver)
R25	18059	1	pot., 1MΩ, w/SPDT (S2)
R26	10434	1	res., 2.2MΩ, 1/2W, ±10% (red, red, green, silver)
R28, 38	10400	2	res., 10KΩ, 1/2W, ±10% (brown, black, orange, silver)
R32	10959	1	res., 560Ω, 2W, ±10% (green, blue, brown, silver)
R34	10424	1	res., 22KΩ, 1/2W, ±10% (red, red, orange, silver)
R36*	10416	1	res., 15KΩ, 1/2W, ±10% (brown, green, orange, silver)
R37	14500	1	res., 500Ω, 5W, ±10% (green, black, brown, silver)
R39	10867	1	res., 47Ω, 1W, ±10% (yellow, violet, black, silver)
R40	10436	1	res., 47Ω, 1/2W, ±10% (yellow, violet, black, silver)
S1	60077	1	switch, rotary
S2			part of R25
SP1	55014	1	speaker, 3.2 ohms
T1	32023	1	transformer, modulation output
T2	34615	1	transformer, 1st IF, 1750kc
T3	34616	1	transformer, 2nd IF, 1750kc
T4	34617	1	transformer, 3rd IF, 1750kc
T5	30036	1	transformer, power, 117VAC or 6VDC (Model 761 only)
T5	30037	1	transformer, power, 117VAC or 12VDC (Model 762 only)
TB1, 4	54016	2	terminal strip, 3 post left upright
TB2	54007	1	terminal strip, 3 post, 2 right with ground.
TB3, 6	54018	2	terminal strip, 4 post, with ground
TB7	54004	1	terminal strip, 2 post, with ground
TB8	54005	1	terminal strip, 2 post, right with ground
TB9, 5	54024	2	terminal strip, 2 post, left with ground
TB10	54015	1	terminal strip, 3 post, 2 left with ground
TB11	54003	1	terminal strip, 2 post
V1	90062	1	tube, 6BA6
V2, 3*, 4	90048	3	tube, 6U8A
V5	90065	1	tube, 6FM8
V6	90047	1	tube, 6AQ5
V7*	90064	1	tube, 12BY7
XF1	97800	1	fuseholder
XV1, 6	97035	2	socket, 7 pin min, bottom mount w/cp
XV2, 5, 7*	97039	3	socket, 9 pin min., bottom mount w/cp
XV3*, 4	97050	2	socket, 9 pin min., top mount

Stock#	Am't.	Description
53033	1	knob, lever
53034	2	knob, round
57000	1	line cord
57500	1	microphone
58004	length	wire, hook
58300	length	spaghetti
58414	length	wire, coax, grey
58415	length	cable, twisted pair #12
58416	length	wire, RG-174/U
58500	length	wire, bare, heavy
58501	length	wire, bare
80072	1	panel, perforate, screen
80073	1	panel, control
81210*	1	chassis
81211	1	bracket, antenna
81212	1	shield, power supply
81213	1	cover, power supply shield
81214	1	shield
81215	1	bracket, speaker
81226*	1	shield box
81232	1	handle
81233	2	index plate
82005	1	shaft, extension
85000	1	bushing, panel
85004	1	feed through, ceramic, male
85005	1	feed through, ceramic, female
86003	1	bezel
88066	1	cabinet
89639	1	license form
89655	2	hood for octal female
92000	1	bulb, #47
97013	2	octal, female
97303	1	tube shield for V4
66343	1	manual of instructions (kit)
66090	1	manual of instructions (wired)

*Prewired to chassis.

**May vary.

VOLTAGE AND RESISTANCE CHART

VOLTAGE CHART

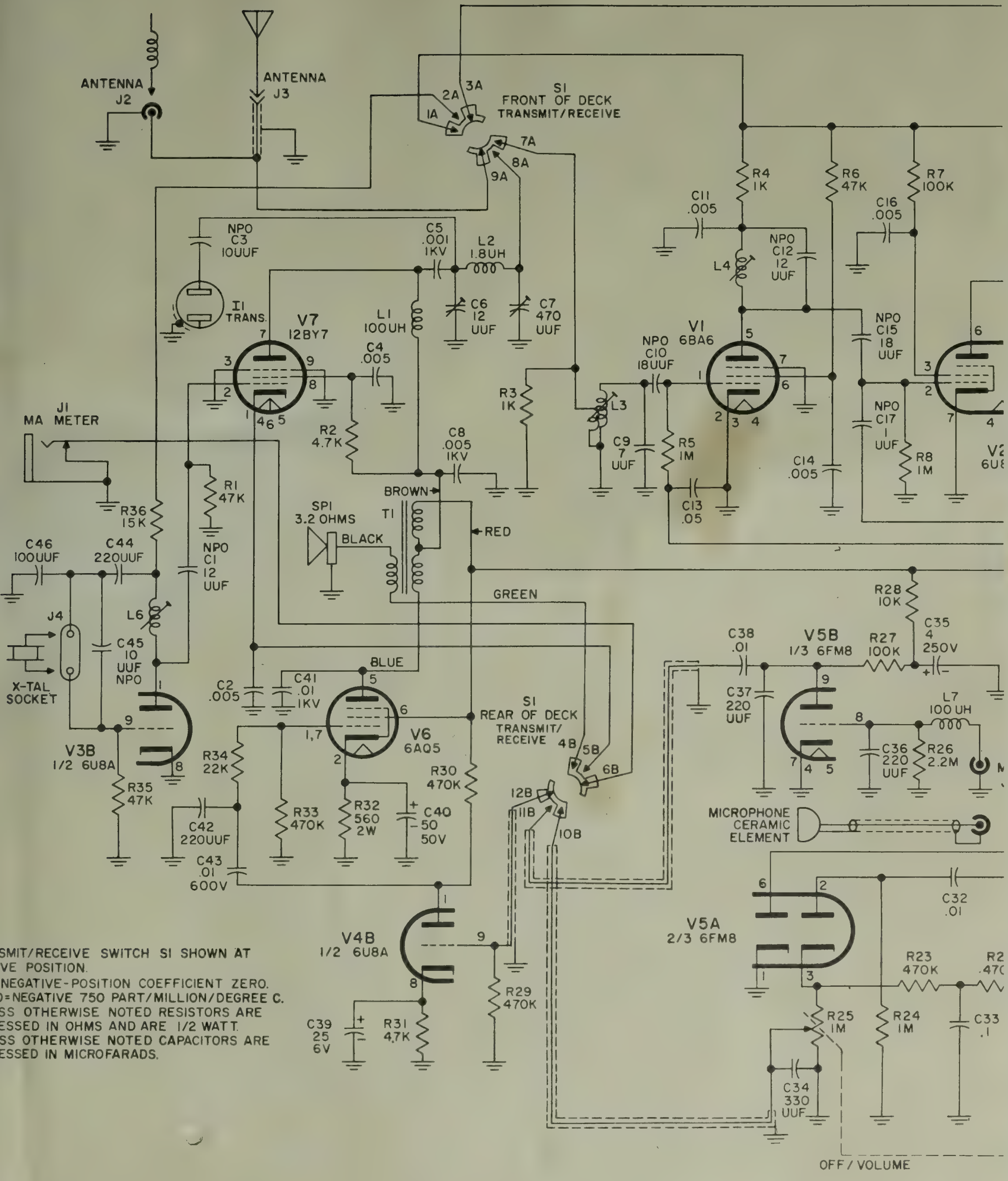
PIN NO. TUBE	1	2	3	4	5	6	7	8	9
V1 6BA6	0	0	0	6VAC	250	75	0	—	—
V2 6U8A	140	0	75	6VAC	12VAC	250	0	0	0
V3 6U8A	n. a.	n. a.	75	0	6VAC	250	0	n. a.	n. a.
V4 6U8A	50	0	110	12VAC	6VAC	250	0	1.7	0
V5 6FM8	0	0	0	0	6VAC	n. m.	0	0	120
V6 6AQ5	0	17	12VAC	6VAC	240	250	0	—	—

All voltages are dc unless otherwise indicated. All measurements are made using a 20, 000Ω/V VOM with the common lead connected to chassis ground. The transceiver VOLUME control is set anywhere clockwise from OFF, and the RECEIVE/TRANSMIT switch is set at RECEIVE throughout. The pins of V7 and some pins of V3 are not accessible. Abbreviations used: n. a. — not accessible; n. m — do not measure. Values measured should be within ±15%.

RESISTANCE CHART

PIN NO. TUBE	1	2	3	4	5	6	7	8	9
V1 6BA6	2 Meg	0	0	<<1	1K	47K	0	—	—
V2 6U8A	22K	1 Meg	100K	<<1	<<1	1K	0	<<1	47K
V3 6U8A	n. a.	n. a.	68K	0	<<1	1K	0	n. a.	n. a.
V4 6U8A	470K	2. 5Meg	68K	<<1	<<1	1K	0	4. 7K	0 to 1/3 Meg*
V5 6FM8	0	1MΩ	1/3 to 1 Meg*	0	<<1	500K	0	2. 2 Meg	110K
V6 6AQ5	470K	560Ω	<<1	<<1	450	0	470K	—	—
Pt. A on schematic (B+)	Not less than 100KΩ after 3 minutes. Positive lead of ohmmeter must be connected to Pt. A								

VOM with common lead connected to chassis ground used for measurement.
All measurements are made with a jumper connected from point A on schematic diagram (B+ output) to chassis ground. Remove jumper at conclusion of measurements or to check resistance from B+ output to ground. Transceiver is disconnected from power source. The TRANSMIT/RECEIVE switch is set at RECEIVE. The VOLUME control may normally be turned to OFF except where asterisk (*) indicates a variation in reading with the VOLUME control setting which may be checked by varying the VOLUME control. The entry " <<1 " means a very low fraction of 1 ohm. Abbreviations used: n. a. — not accessible. Values measured should be within ±20%.



NOTE: 1. TRANSMIT/RECEIVE SWITCH S1 SHOWN AT RECEIVE POSITION.
2. NPO = NEGATIVE-POSITION COEFFICIENT ZERO.
3. N-750 = NEGATIVE 750 PART/MILLION/DEGREE C.
4. UNLESS OTHERWISE NOTED RESISTORS ARE EXPRESSED IN OHMS AND ARE 1/2 WATT.
5. UNLESS OTHERWISE NOTED CAPACITORS ARE EXPRESSED IN MICROFARADS.

Model 761 _ CITIZENS

VOLTAGE AND RESISTANCE CHART

VOLTAGE CHART

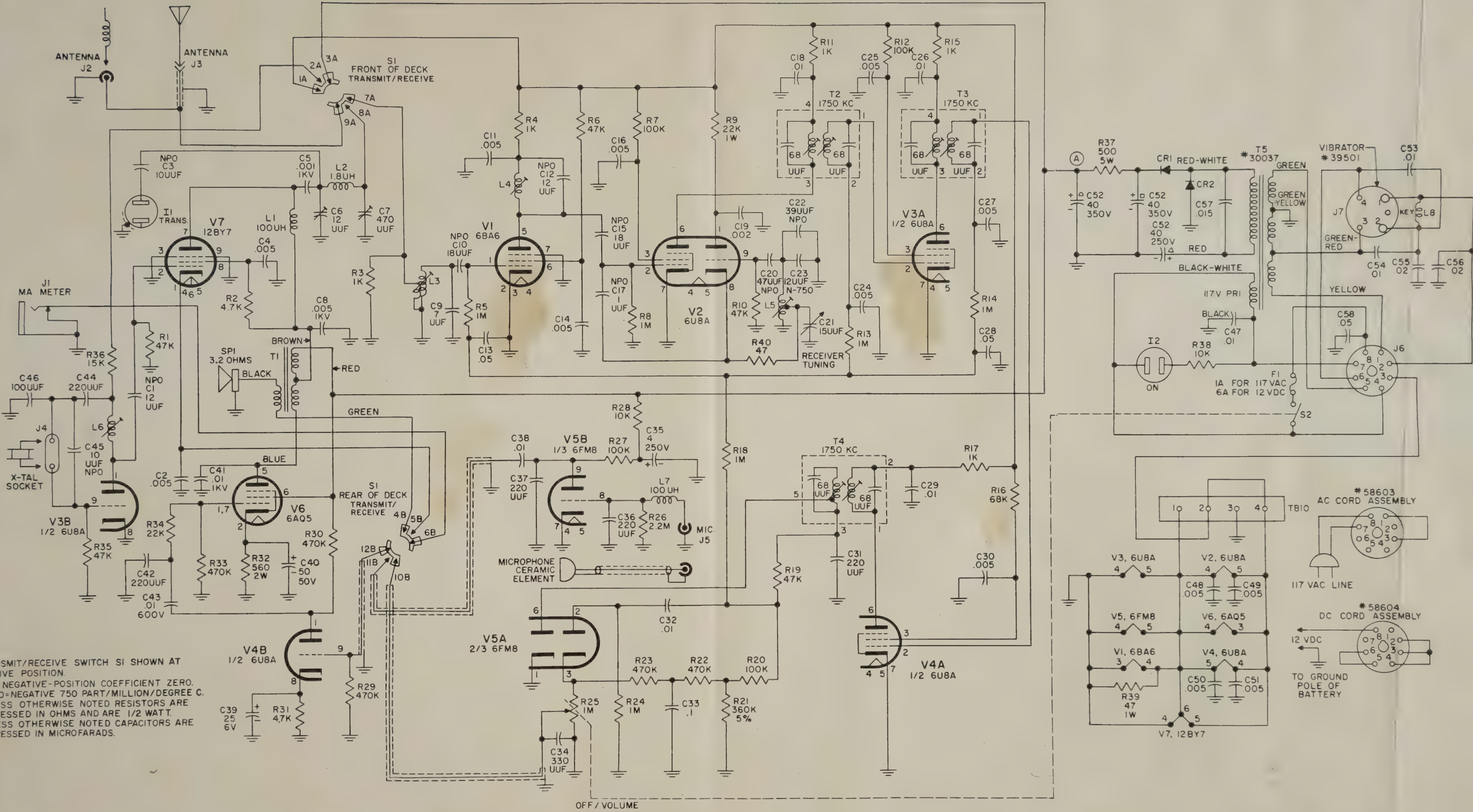
PIN NO. TUBE	1	2	3	4	5	6	7	8	9
V1 6BA6	0	0	0	6VAC	250	75	0	—	—
V2 6U8A	140	0	75	6VAC	12VAC	250	0	0	0
V3 6U8A	n. a.	n. a.	75	0	6VAC	250	0	n. a.	n. a.
V4 6U8A	50	0	110	12VAC	6VAC	250	0	1.7	0
V5 6FM8	0	0	0	0	6VAC	n. m.	0	0	120
V6 6AQ5	0	17	12VAC	6VAC	240	250	0	—	—

All voltages are dc unless otherwise indicated. All measurements are made using a 20, 000Ω/V VOM with the common lead connected to chassis ground. The transceiver VOLUME control is set anywhere clockwise from OFF, and the RECEIVE/TRANSMIT switch is set at RECEIVE throughout. The pins of V7 and some pins of V3 are not accessible. Abbreviations used: n. a. — not accessible; n. m — do not measure. Values measured should be within ±15%.

RESISTANCE CHART

PIN NO. TUBE	1	2	3	4	5	6	7	8	9
V1 6BA6	2 Meg	0	0	<<1	1K	47K	0	—	—
V2 6U8A	22K	1 Meg	100K	<<1	<<1	1K	0	<<1	47K
V3 6U8A	n. a.	n. a.	68K	0	<<1	1K	0	n. a.	n. a.
V4 6U8A	470K	2. 5Meg	68K	<<1	<<1	1K	0	4. 7K	0 to 1/3 Meg*
V5 6FM8	0	1MΩ	1/3 to 1 Meg*	0	<<1	500K	0	2. 2 Meg	110K
V6 6AQ5	470K	560Ω	<<1	<<1	450	0	470K	—	—
Pt. A on schematic (B+)	Not less than 100KΩ after 3 minutes. Positive lead of ohmmeter must be connected to Pt. A								

VOM with common lead connected to chassis ground used for measurement.
All measurements are made with a jumper connected from point A on schematic diagram (B+ output) to chassis ground. Remove jumper at conclusion of measurements or to check resistance from B+ output to ground. Transceiver is disconnected from power source. The TRANSMIT/RECEIVE switch is set at RECEIVE. The VOLUME control may normally be turned to OFF except where asterisk (*) indicates a variation in reading with the VOLUME control setting which may be checked by varying the VOLUME control. The entry " <<1 " means a very low fraction of 1 ohm. Abbreviations used: n. a. — not accessible. Values measured should be within ±20%.



NOTE: 1. TRANSMIT/RECEIVE SWITCH S1 SHOWN AT RECEIVE POSITION.
2. NPO = NEGATIVE-POSITION COEFFICIENT ZERO.
3. N-750 = NEGATIVE 750 PART/MILLION/DEGREE C.
4. UNLESS OTHERWISE NOTED RESISTORS ARE EXPRESSED IN OHMS AND ARE 1/2 WATT.
5. UNLESS OTHERWISE NOTED CAPACITORS ARE EXPRESSED IN MICROFARADS.

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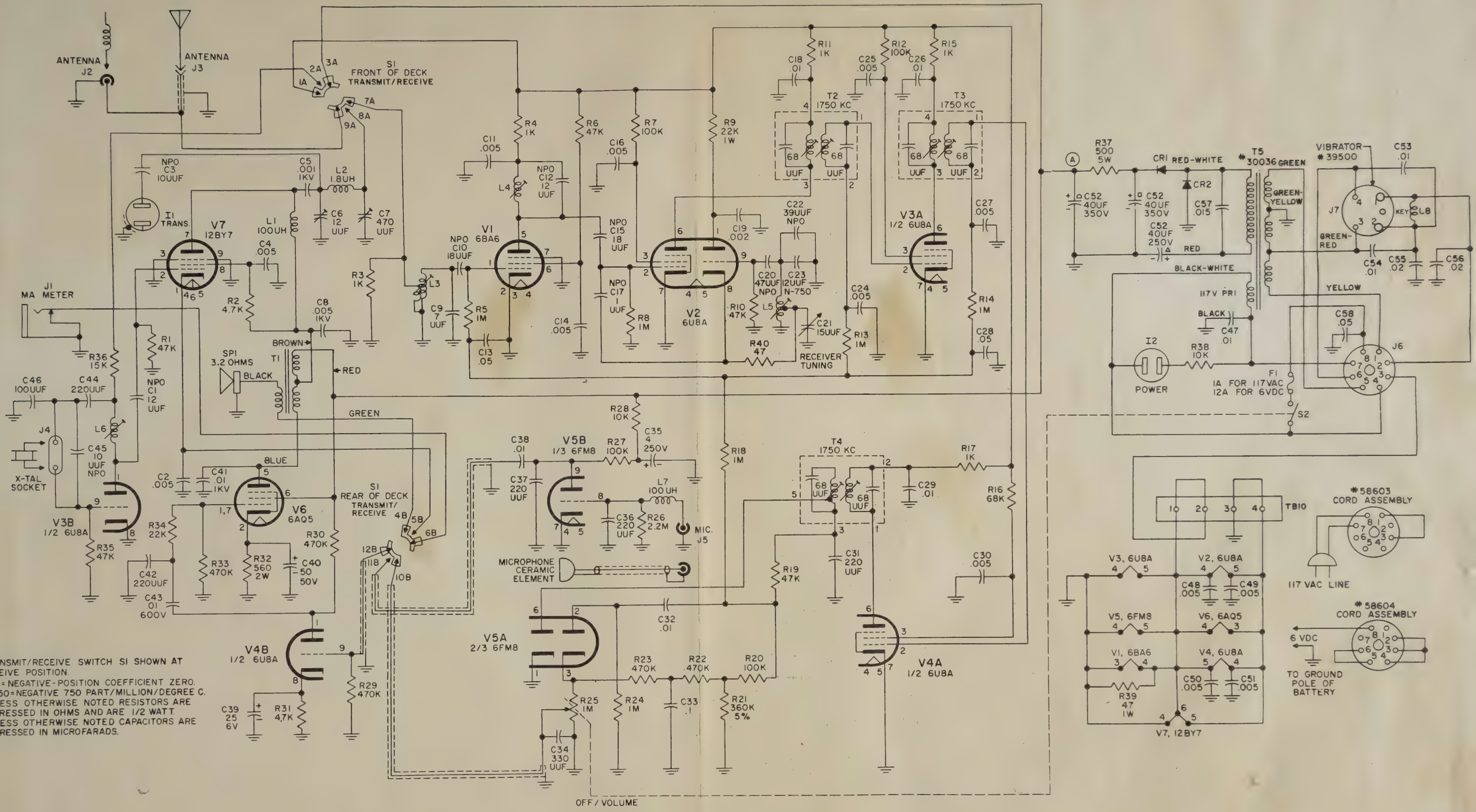
EICO Model 762 — CITIZENS BAND TRANSCEIVER



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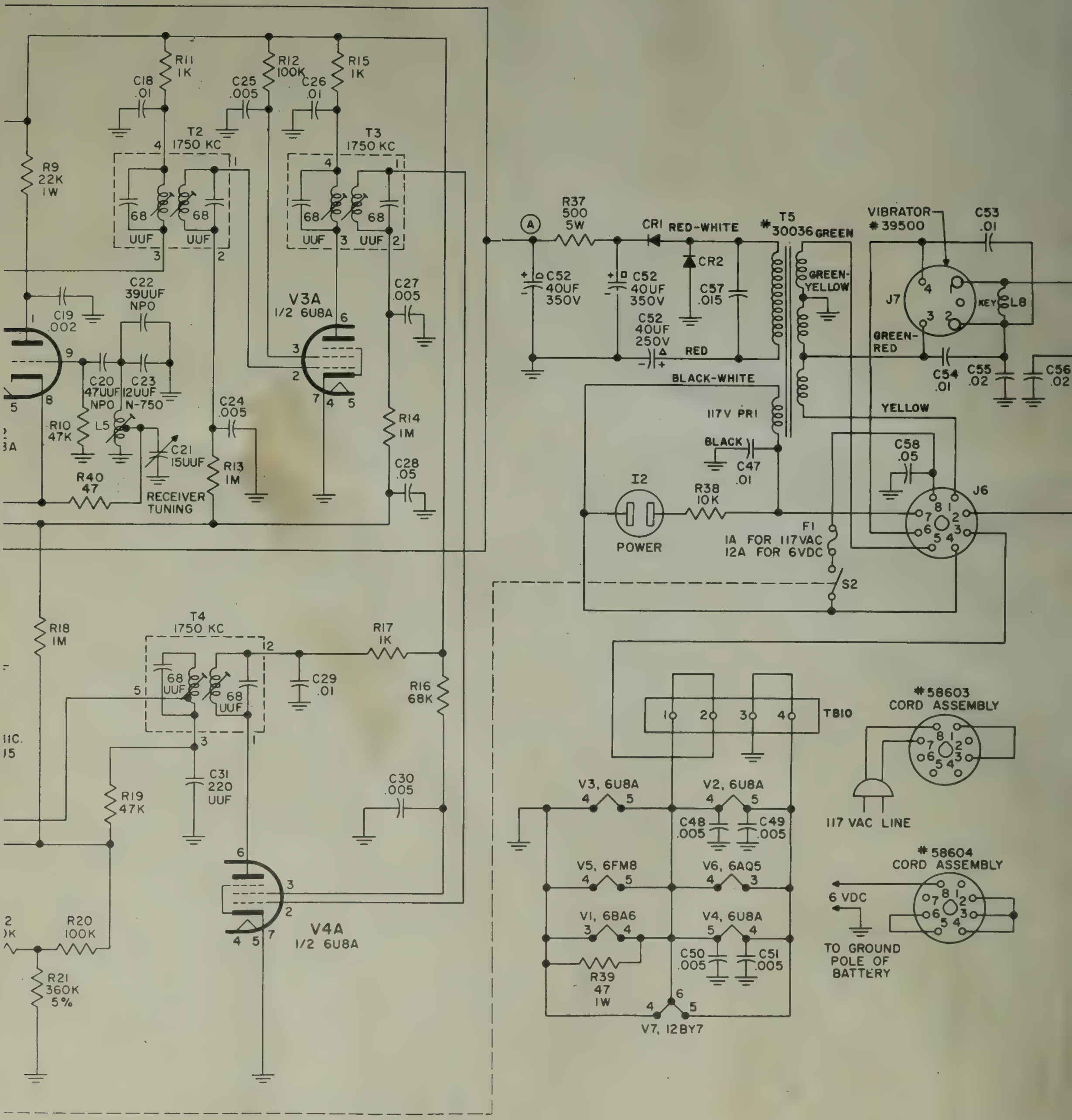

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